



SKUTT

Touchscreen Controller Operating Manual for KMT and GMT Models



Be Safe

Tens of thousands of kilns are used safely in homes, schools, and professional studios throughout the world. With a good understanding of your kiln and a little common sense, you can avoid any accidents. Please observe the following safety recommendations:

- The stainless steel jacket and some of the other fixtures surrounding the kiln will get hot enough to burn your skin when the kiln is heated. Therefore, it is important to be extremely careful when working close to the kiln. We recommend posting warning signs of this potential hazard in the kiln room.
- Keep anyone who cannot understand warning signs such as small children and pets away from the kiln when it is firing.
- Be careful when opening the kiln door while the kiln is heated. We recommend you use fire rated gloves to protect your skin and make sure clothing is kept well away from any kiln opening or hot kiln surface.
- The elements inside the kiln chamber will cause an electrical shock if touched. Never insert metal instruments or place any part of your body into the kiln while it is firing.
- Always be sure to unplug the kiln before working on the electrical components. If the kiln is hard wired, turn off the circuit breaker.
- Plan on being with the kiln when it is scheduled to turn off.
- Remove all potentially combustible materials from the kiln area.
- Do not place combustibles in your kiln, such as: paper (except specific shelf liner fiber-paper used for glass applications), cardboard, wood, plastic, etc.
- Long term viewing inside the kiln chamber can cause damage to your eyes. Therefore, it is recommended that you use IR and UV protective glasses when looking into the kiln for extended periods of time. #3 welders green or gray glasses will protect your eyes.
- Be cautious of intense heat around the peep holes when peep plugs are removed.
- In the event of a severe storm, unplug your kiln. Exposure to static shock or electrical surges can damage the circuit board in the controller.
- The kiln lids on many models are heavy. Make sure the lid brace is secure before releasing the lid. Make sure the hardware that secures the lid brace is secure and not corroded.
- Do not place anything in the kiln you are unsure of. Certain items may potentially melt, explode, or release toxic fumes. Items that may be damp (i.e. greenware, kiln shelves) have the potential to crack or explode inside the kiln when the moisture trapped inside them turns to vapor when heated.
- Never allow your kiln to exceed the temperature rating listed on the serial plate.
- For your safety, the protection of your kiln, and the protection of your ware inside the kiln, we recommend that you avoid unloading the kiln when it is above 125°F (52°C).
- The controller is a temperature control device. It is not a safety device.
- The maximum operating temperature is 100°F (38°C). This temperature refers to the room temperature while the kiln is firing and does not pertain to the internal temperature of the kiln.
- The minimum operating temperature is 33°F (1°C).

- The controller contains static-sensitive parts that may be damaged by static electricity. Use caution to avoid creating static that may damage the equipment. In areas where static electricity is common, or during dry times of the year throughout the country, touch the kiln lid handle before touching the controller to discharge the static.
- As with all electrical products there is danger of electrical shock. Use only properly sized and rated copper wire when installing the power supply for your kiln. We recommend this work is done by a licensed electrician.
- Kilns should always be located in a dry place to prevent electrical shock and corrosion.
- Follow all instruction for installation in this manual. Always observe fire, building and safety codes when installing any Skutt Product.
- If there are fire sprinklers located in the kiln room make sure they are rated high enough so they will not be set off when the kiln is at peak temperature. This should be tested with the kiln at peak temperature, the ventilation system turned off and all doors and windows closed for maximum insurance.
- We recommend having a fire extinguisher rated for electrical fires easily accessible near the kiln.
- Skutt Ceramic Products, Inc. will not assume liability for injury or damages caused by variations from the instructions put forth in this manual.
- Kilns get hot. Observe all instructions to ensure proper clearances from flammable or temperature sensitive objects and living things.
- Ventilation is key to maintaining a healthy work environment and proper room temperature. Proper installation of a Skutt EnviroVent 2 will clear potentially harmful fumes from the room. To ensure proper room temperature is maintained consult a qualified HVAC professional.
- The proper placement of thermocouples is crucial to the proper operation of all automatically controlled kilns. Check all thermocouples for damage and correct placement. Thermocouples must protrude into the kiln chamber at least 1" to ensure an accurate reading.
- Only use the stand that is designated by Skutt Ceramic Products, Inc. for your particular kiln model. Other stands may not properly support the weight of your kiln, provide adequate clearance, and could pose a fire hazard.
- The power cord is sized correctly to handle the power for your particular kiln. Never use an extension cord.
- Make sure the power cord is routed in such a way as to not touch any portion of the kiln that gets hot.
- Be careful of pinch hazards when working on or assembling the kiln.
- Be sure to properly tension the springs on kilns equipped with lid lifters.
- Always unplug the kiln before performing any repairs or general maintenance. If your kiln is wired direct, turn off the breaker.
- Use only Skutt replacement parts. Improperly sourced parts may pose a hazard to you and your kiln and void your warranty.
- Never modify your kiln without first consulting Skutt. Improper modifications may pose a hazard to you and your kiln and void your warranty. Items such as alternative thermocouples, controllers, kiln coatings may ruin your kiln if improperly installed or applied.
- Replace any electrical components that are discolored, brittle, or corroded.
- Inspect all stainless steel bands to ensure they are tight. If they are loose, tighten them as much as possible to prevent the band from slipping or flexing.

Locating the Kiln

- Locate your kiln near your present electrical outlet or where a new circuit can be installed. Position the kiln to the left of your electrical outlet so the cord will have an easy run and will not place a strain on the plug or outlet.
- Install it in a well ventilated, sheltered area such as a carport, garage, utility or hobby room. Allow a **MINIMUM 18 inches (46 cm)** of space between your kiln and adjacent walls, other kilns, shelving, etc. When multiple kilns will be installed in the same room, make sure the control boxes on the kilns are not facing adjacent kilns. Radiant heat from nearby kilns can damage the controller.
- For small rooms, monitor the firing so the room temperature does not exceed 100°F (38°C). Do not fire if room temperature is 32°F (0°C) or less as damage to the electronic components may result. Below is an example of a typical room layout.
- Locate the kiln in a room with a bare concrete floor. If a bare concrete floor is not available, the uniform mechanical code requires two inches of masonry below the kiln extending a minimum of 12" (31 cm) beyond the outside circumference of the kiln.
- When installing a kiln in a room with a fire control sprinkler system, do not place kilns within a 10 ft. (3m) radius below sprinkler heads. If this is not possible, contact Skutt for alternative solutions before installing. Be sure temperature rating of sprinkler heat detector will be adequate for normal operation of kiln at peak temperature.
- All kilns are vulnerable to the highly corrosive effects of marine air. If you live near salt water, locate the kiln indoors and protect it from the damp air.

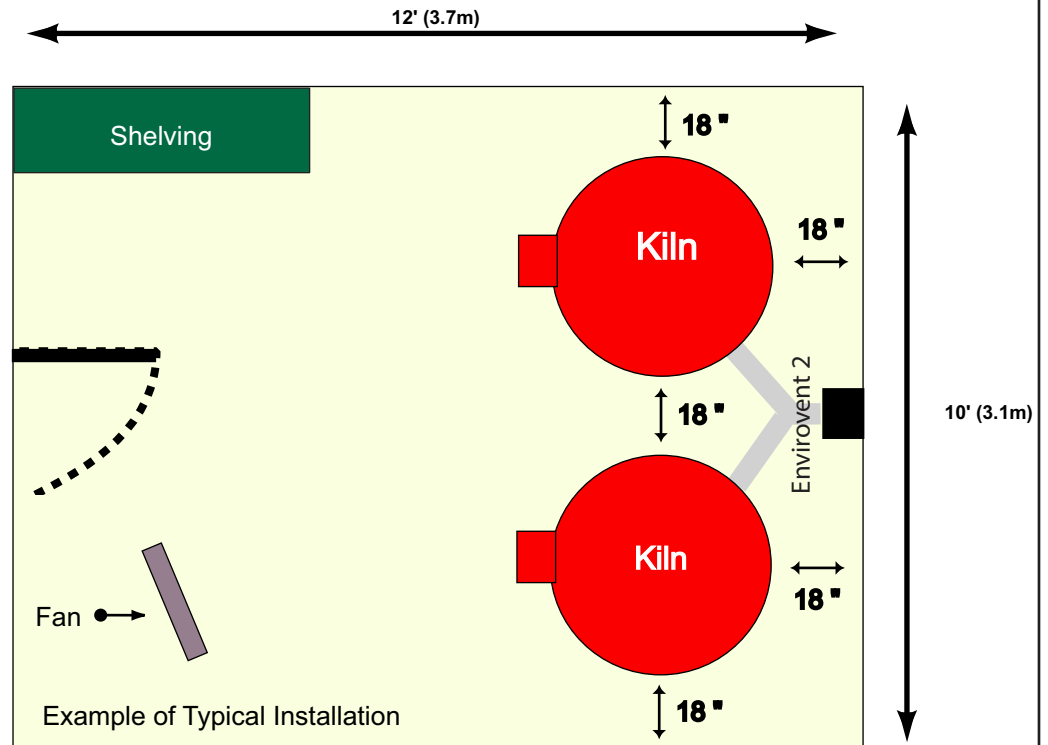
Preparation

Certain kiln models may have slightly different set-up instructions. Special set-up instructions for PK Kilns and the KM-1 Wall Mount Controller are located in the Appendices section of the KilnMaster Operating Manual.

- Save packing material until test fire is complete. The kiln comes almost completely assembled. If you need to disassemble the kiln to make it lighter or smaller to move through doors, see Appendix 1 in the KilnMaster Operating Manual.

Load the Lid Lifter Springs

If your kiln is equipped with a spring assisted Lid Lifter, you will need to load the springs. They have been de-tensioned to avoid damage to the kiln during shipping. Please consult page 7 in this manual for instructions on tensioning the springs.



Remove and Set Up Stand

- Remove the tape holding the lid brace and lid prop if your kiln has a lid lifter , open the lid, and secure the lid brace in place.
- Slightly bend the stand packing cardboard to relieve the tension against the brick wall and carefully lift the stand out of the kiln, being careful not to damage the brick or the thermocouple.
- Remove the peep plugs which are taped to the stand.
- Install the black plastic stand feet which are located in the plastic bag with the manual.
- Place the stand where the kiln will be located. If you have an older style EnviroVent (where the fan motor mounts directly under the kiln), place it in the stand now.

Place Slab (Kiln Bottom)

- Undo the latches that hold the kiln slab to the kiln. Lift the kiln off the slab and place on a clean flat padded surface. Be careful not to set the kiln on anything (watch the power cord) that will damage the bottom row of bricks.
- Center the slab on the stand. Allow a minimum of eighteen inches (46 cm) of spacing from walls and other kilns.
- If the stand is not level or wobbles, shim legs accordingly. Do not place shims between the stand and the slab.

Placing the Kiln

- With a partner, pick the kiln up by the section handles and rest it on top of the kiln slab (floor).
- On models with slabs that latch to the kiln, reattach the latches.

Place Peep Plugs

Place the white porcelain peep plugs into the peepholes of the kiln. Give them a slight twist to lock them in. If you are not using an EnviroVent, EnviroVent 2, or any other Downdraft vent, be sure to leave the top peep plug out when firing.

Clean

Vacuum the inside of the kiln to remove dust, brick chips, and other foreign matter from around the elements. Be sure not to get the vacuum hose or nozzle too close to the thermocouple or touchpad. Static electricity built up in the hose can damage the electronics. Be sure all tape and tape residue is removed from the kiln and stand.

Test Firing

The test fire is very important and should not be skipped. It accomplishes several objectives:

- Ensures the kiln is operating correctly and nothing was damaged in shipping.
- Burns off element oils and develops an oxide coating which will help prolong the life of the elements.

Kiln Wash Shelves

Brush coat one side of each shelf with high fire kiln wash. Apply a thin coat of kiln wash in one direction, allow to dry, and apply another thin coating in the opposite direction leaving a half inch (1.3 cm) uncoated margin from the outside edge of the shelf. Allow to dry overnight. Never kiln wash the walls or lid of your kiln!

KMT Test Firing Instructions

Loading

This first firing should be done with only kiln shelves. Place the first shelf layer on one-inch (2.5 cm) posts above the slab. When loading ware in the kiln, it is important to load it evenly to ensure proper ventilation. For a full description on loading, reference Appendix 4 – Loading Tips in the KilnMaster Operating Manual.

Place Witness Cones

A Cone 04 (1945°F/1063°C) is recommended for proper pre-oxidation of a new element. *For more about cones, reference Appendix 3 – Heatwork (Cones) in the KilnMaster Operating Manual.*

Prepare Venting

Reference the KilnMaster Operating Manual page 17, Step 6 Prepare Venting for further instructions.

Enter Test Fire Program

Enter a Cone Fire Mode program to run a **Cone 04, Medium Speed** program with **No Hold** time and **No Preheat**. After the kiln has cooled to room temperature, unload the kiln and inspect the cones. If the Cones are satisfactory you are ready to begin using the kiln. *If there is a problem with the cones see the section on Fine Tuning your Kiln on page 15 of the KilnMaster Operating Manual.*

Note: *Cone Correlation may vary between cones. Be sure to do a test fire using witness cones with each cone value you will be using.*

GMT Test Firing Instructions

Seating/Oxidation of The Elements

The elements of your kiln need to be properly seated into the grooves of the brick. Elements have stress in them much like glass before it is annealed. This stress is caused by winding and stretching the elements. By bringing the elements up to a minimum temperature we allow the elements to settle into the grooves and relieve this stress. After the elements have been seated, it is more stable and less likely to pop or crawl out of the grooves.

A seating/oxidation program for the Elements is located in the Library under the Program Menu.

Test Firing

The test fire ensures you that the kiln is functioning properly and has not been damaged in shipping.

Test Fire Procedure

- Post up a shelf in the kiln chamber at a level where the top of the shelf is between 1" and 2" below the thermocouple. Fuse with the shelf in this position relative to the thermocouple whenever possible for accurate and consistent results.
- Place a sample glass project using scrap fusible glass in the kiln and choose a GlassFire mode program using the instructions in this manual. As a precaution you may want to provide a dam or barrier around the glass when fusing more than 2 layers. With more than 2 layers, the glass will spread until it finds a level of 1/4" (5 mm).
- Let the kiln fire and then cool to room temperature before opening the lid. If the project is fused or slumped to your satisfaction the kiln is operating correctly.

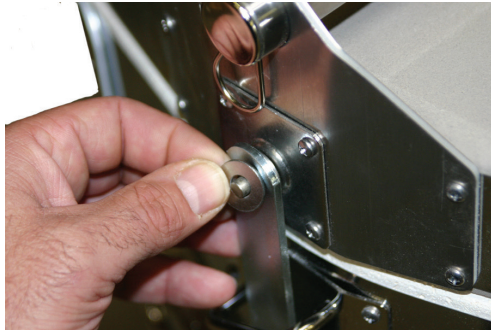
The first time the elements are fired they will give off some smoke. This is normal and expected. It is also common for hairline cracks to appear in the floor of a kiln. This is caused by the expansion and contraction of the mortared brick and is considered normal. It will not affect the firing of your kiln nor the life of the kiln floor.

Tensioning The Lid Lifter

The Lid Lifter is shipped with the hinge springs de-tensioned in order to protect the lid during shipping. Please follow the instructions for tensioning the lid carefully to ensure success and avoid injury. Not all models have Lid Lifters.

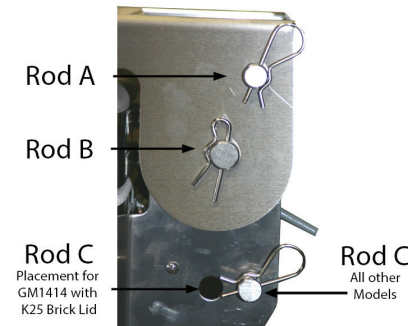
Step 1 - Remove the Lid Brace

Remove the cotter pin and washer from the lid brace pad and remove the lid brace.



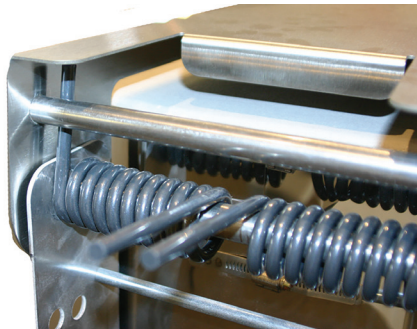
Step 2 - Remove Rod A & C

Remove the cotter pins on one side of Rod A and Rod C and with the lid closed slide out the rods.



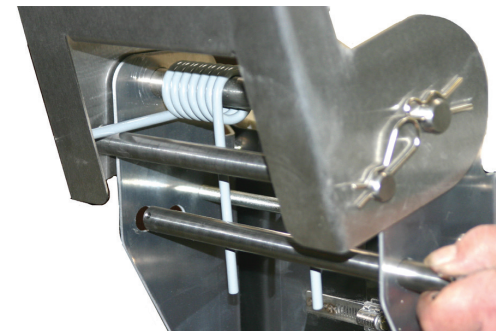
Step 3 - Re-insert Rod A

With lid closed, insert rod A with the springs in the position pictured below. Replace cotter pin.



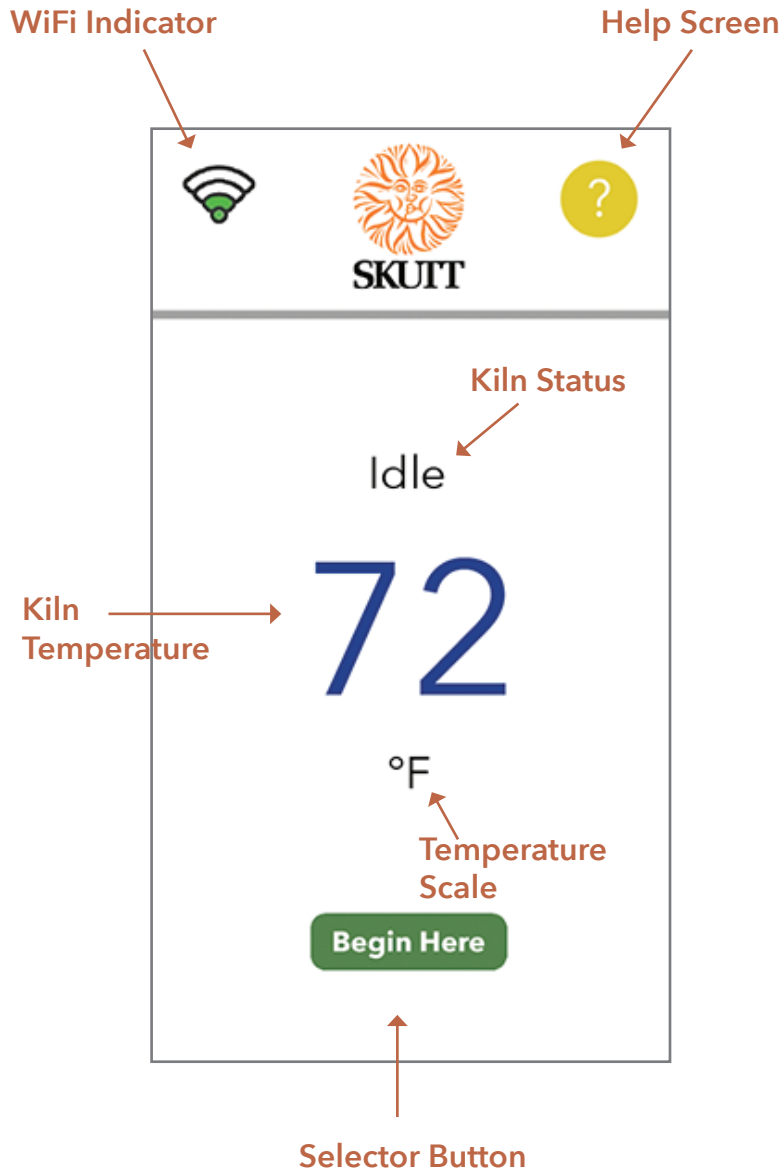
Step 4 - Re-insert Rod C

Open the lid all the way with an assistant to hold the lid (Lid will be heavy since it is not tensioned yet). Insert rod C as pictured below. Replace cotter pin. Lid is now tensioned. Close lid and replace lid brace.



De-tensioning and Removing The Lid

To remove the lid it will be necessary to detension it first. Start by removing the lid brace and raising the lid as far as it will open. Use an assistant to hold the lid open, as the lid will be heavy when fully opened. Next, remove Rod C and close the lid. Be careful when lowering the lid since it is now de-tensioned. To remove the lid, remove Rod B and lift the lid straight up off the kiln. Be sure to note orientation of Left and Right springs for reassembly later.



Navigation

We designed the new KilnMaster Touch Controller to be intuitive, informative, and comprehensive. It is the result of years of focus group research, design consulting, and innovative brainstorming. We hope you like it at much as we do.

Anything on the screen you can touch that activates, selects, or changes screens we will refer to as Buttons. Before you start pressing any, lets take a tour of the various symbols icons and navigational buttons you will see and interact with while using your controller.

Wifi Indicator - The WiFi Status Button displays the status and strength of your WiFi connection. When you first power up the controller it will display a red X over the icon indicating you are not yet connected. To connect just press the icon and it will take you the WiFi menu screen where you can select WiFi Setup.

The WiFi symbol will appear on the Home screen and the Firing screen. On almost all other screens it will be replaced by the Home symbol which will take you back to one of these screens.

The strength of your WiFi signal will be represented by how many of the lines of the WiFi symbol are green.

Help Button - One of the greatest innovations on this new controller is that almost every screen has a Help Button in the top left corner. If you ever are unsure what to do or what exactly you are looking at on the screen, simply press the Help button and you can view helpful descriptions and suggestions.

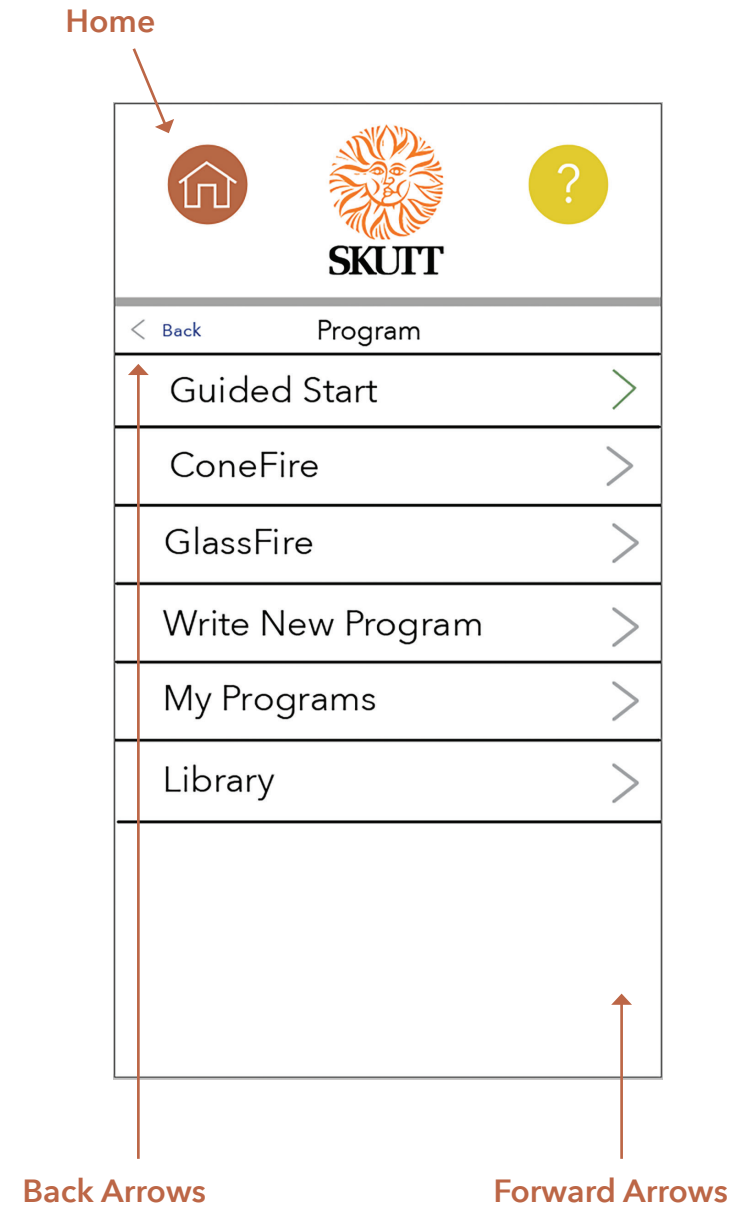
Kiln Status - This is exactly what it sounds like. When you are not actively programming, the screen will revert to 1 of 5 status screens:

- **Idle** - No program is running
- **Delay** - A program has been started and there is a delay start time entered in the program. The controller is counting down the delay time before it starts the program.
- **Heating** - The kiln program is running and the kiln has not yet reached temperature.
- **Cooling** - The kiln has reached peak temperature and is now in a controlled cooling segment.
- **Complete** - The kiln program has completed all of its segments and the kiln is done firing but not necessarily cool enough to unload.
- **Unload** - The kiln has completed the program and has cooled to a temperature of 125 °F or cooler.

Temperature and Temperature Scale - This represents the current temperature within the kiln chamber. When the kiln is firing and the temperature is above 125 °F (52 °C), the color will be **Red** and when the kiln is below 125 °F or less, the numbers will be **Blue**. If the temperature scale has been set to Fahrenheit there will be an F below or to the side of the temperature. If the scale is set to read in Celsius there will be a C.

Selector Button - These buttons are **Green** and come in different shapes and sizes. Pressing one of these will either make a selection or initiate an action. On certain occasions they are used to scroll through selections by sliding them up and down.

Forward and Back Arrows - These arrows are generally found on Menu screens when you are trying to navigate to a particular screen. Right facing arrows will take you to the next screen and left facing arrows will take you to the previous screen. They are always **Gray**.



Configuring Your Controller

The controller is ready to go out of the box but if you want to take full advantage of all the features available and customize it to work specifically for your needs there a few pieces of information that need to be entered.

Celsius or Fahrenheit

Most controllers will be set for the appropriate temperature scale based on where the distributor is located. Within the USA, controllers are set to Fahrenheit. Outside the USA, controllers are set to Celsius. If you purchased your controller outside of the country from which you are currently installing the kiln you will want to check this setting.

Electrical Cost

The controller will automatically calculate the amount it costs to fire each kiln load. All you need to do is to enter the amount you pay per Kilowatt Hour to the nearest cent at Settings/General Settings/Enter Electrical Cost.

Interface

On Glass Kiln Models that are rated under 1800 °F (982 °C), ConeFire Mode will not appear. We set this in the factory hidden menu to help ensure you do not overfire your kiln.

You have the option of temporarily disabling GlassFire Mode, ConeFire Mode, and all of the Custom program features including Write New Program, My Programs, and Library. This streamlines your menus so you dont see features you will not use. More importantly, it can help employees from having access to programs that can damage your kiln if used incorrectly. To disable or enable these programming features go to Settings/Interface.

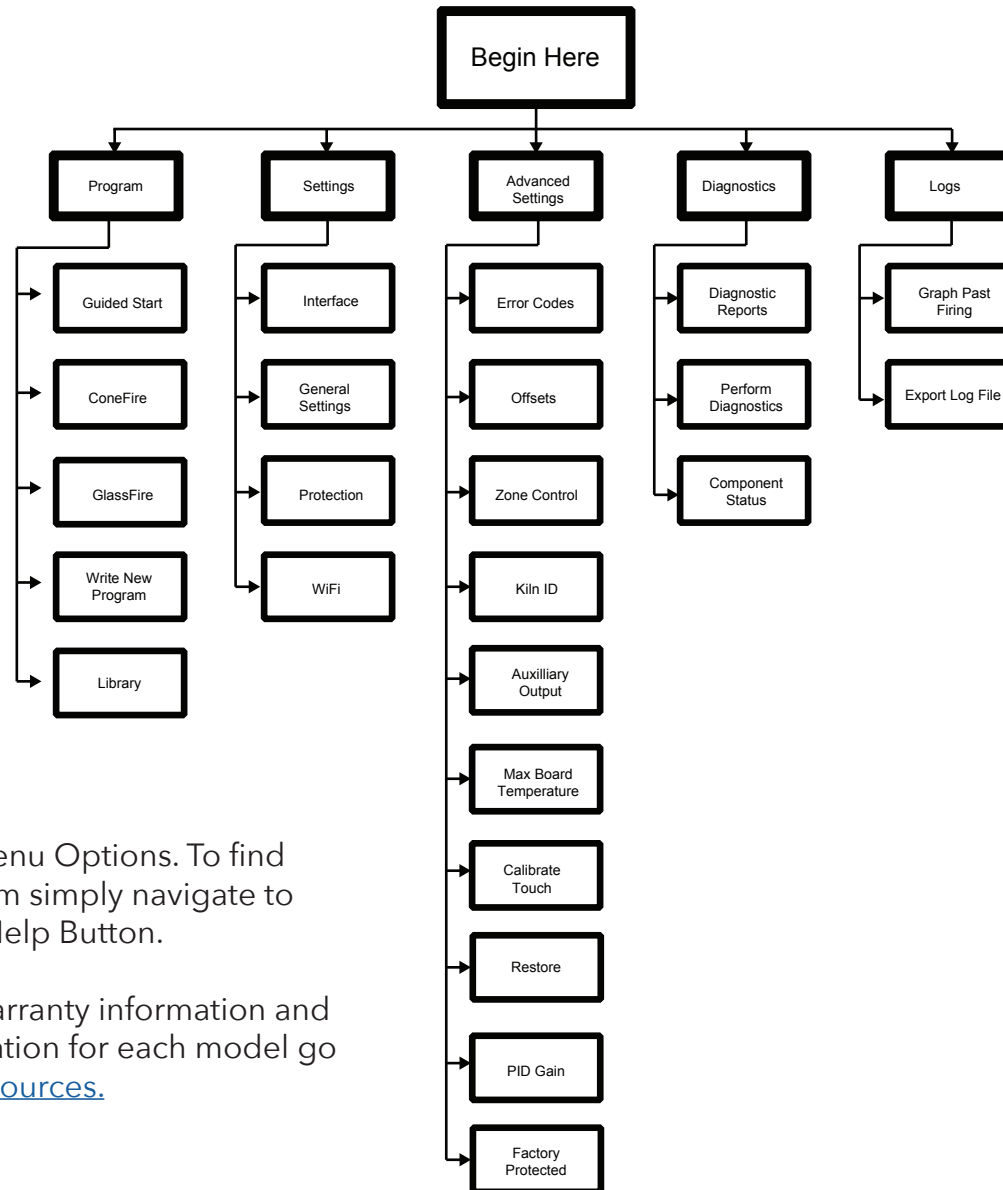
Protection

Another way to protect your kiln is to set a Maximum Programmable Temperature. When this is set to a specific temperature it will not allow users to load programs that have peak temperatures above the set value. You will find these settings under Settings/Protection. You will also find the ability to set up a 3 digit numeric start code here. If you ever forget the code, just go back in the menu and it will reset it to no code required status.

WiFi

In order to download updates to the software and use the Kiln Monitoring App or KilnLink, you will need to connect to the WiFi. available in the room you are firing. This can be accessed from Settings/WiFi or simply by pressing the WiFi icon at the top left hand corner of the Idle Screen.

Controller Menu



Here is a list of all of the Menu Options. To find more about each menu item simply navigate to that screen and press the Help Button.

To find wiring diagrams, warranty information and much more helpful information for each model go to www.skutt.com/skutt-resources.

Support

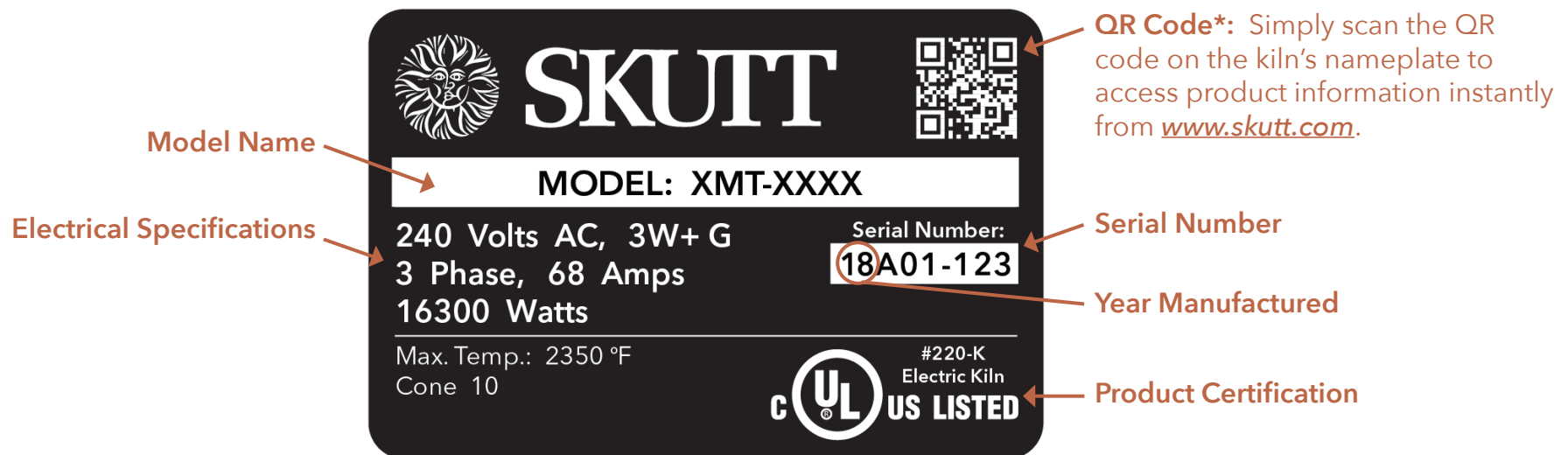
If you find yourself needing support please remember that Skutt and your Skutt Kiln distributor are here to help you as long as you own your kiln. If you are unable to determine the problem, need help, or just need to order parts, please let us know. The Skutt website has a variety of support resources, including how-to-videos and a parts finder.

Know Your Kiln

Whether you're ordering replacement parts or adjusting a specific firing, knowing your kiln is important. Our newly designed nameplates help make this easier.

Use your kiln's serial number to get access to product specific data. Simply scan the QR code on the kiln's nameplate to access product information instantly from www.skutt.com. The Skutt nameplate is located on the side of the control box.

Skutt Nameplate



*Most smartphones are equipped with a pre-installed QR Code reader or you can download a free QR code reader/scanner app from your phone's app store.